

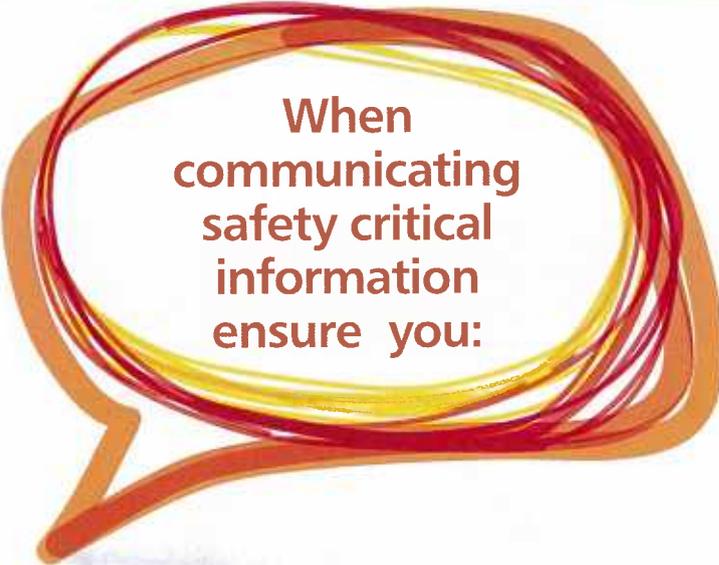
Phonetic Alphabet

A	ALPHA	N	NOVEMBER
B	BRAVO	O	OSCAR
C	CHARLIE	P	PAPA
D	DELTA	Q	QUEBEC
E	ECHO	R	ROMEO
F	FOXTROT	S	SIERRA
G	GOLF	T	TANGO
H	HOTEL	U	UNIFORM
I	INDIA	V	VICTOR
J	JULIET	W	WHISKY
K	KILO	X	X-RAY
L	LIMA	Y	YANKEE
M	MIKE	Z	ZULU

Safety Critical Communications



EVERY CALL – EVERY TIME



When communicating safety critical information ensure you:

- Remember it is not just about what you say, but **HOW** you say it
- Be assertive (with empathy) and **TAKE THE LEAD**, especially when the other parties' communications are below standard
- Comply with all relevant communication protocols
- Use the standard terms and phonetic alphabet where appropriate
- Use clear, concise, professional communications
- **PLAN** what you are going to say before you begin your transmission
- State **WHO** you are, **WHERE** you are, **WHAT** you require
- Receiver to **REPEAT BACK** the **COMPLETE MESSAGE** to ensure it is understood

general

Network communication

General

To prescribe the rules for spoken and written communication in the Network.

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Principle

Communication in the Network must be:

- clear, brief and unambiguous
- relevant to the task at hand
- agreed to its meaning before being acted upon.

Safeworking communication must use:

- the 24-hour clock to give the time of day
- the phonetic alphabet and spoken numbers to identify:
 - train numbers and track vehicle numbers
 - signal numbers.

Communication equipment used for rail traffic operation or work on track must be tested and checked for its intended operation.

general

Network communication

Confirmation of communication

The receiver must confirm the content of a message by repeating the message back to the sender, if the communication is about:

- a Condition Affecting the Network (CAN)
- a Proceed Authority
- an instruction not to proceed
- a work on track authority
- a work on track method
- work on track Train Running Information
- Special working.

As far as practicable once commenced, communication must be completed without interruption.

If communication is interrupted, the sender must restart the communication from the beginning, repeating items already sent.

The receiver must not act on the communication until the sender confirms that the message has been repeated correctly.

Relaying communications

If it is not possible for a sender to communicate directly with an intended receiver, Qualified Workers may relay the content.

The content of a communication must be relayed exactly as received.

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general

Network communication

Emergency communication

Emergency communications must be:

- given priority
- answered immediately.

If there is an emergency message on an open-channel radio, other users of the channel must stop transmission immediately.

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Spoken communication

Open-channel communication must use the standard terms and protocols in this Rule and in *NPR 721 Spoken and written communication*.

If not sure whether communication equipment is discrete channel, Qualified Workers must use open-channel communication protocols.

Spoken communication must be promptly acknowledged.



WARNING

Qualified Workers must not assume that a receiver has understood a message before the receiver confirms that the message has been understood.

If the meaning of a spoken communication is not understood:

- the receiver must ask that it be repeated, or
- if necessary, the sender and the receiver must use the phonetic alphabet and spoken numbers to clarify and confirm the message.

general

Network communication

The receiver must try again as soon as practicable, or arrange alternative means to communicate with the sender, if:

- the receiver cannot understand the message, or
- the sender cannot hear or understand the reply.

Recording spoken communications

If spoken communication recording equipment is provided, it must be used to record Network communications.

The recordings must be kept for at least 28 days.

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Spoken communication protocols

Senders and receivers of communications must start the communication with identification of the receiver first, and the sender second.

Communications from an attended location must include the sender's name and location.

Communications from train or track vehicle must include the sender's train number or track vehicle number.

Communications from a worksite must include the sender's:

- name
- Safeworking designation
- location.

general

Network communication

Open-channel radio communication

Unless the use of 450.050MHz train radios has been advertised in a Weekly Notice as prohibited at that location, they may be used for shunting in yards.

Qualified Workers using open-channel radios must:

- except in an emergency, check that the channel is not already in use before starting a transmission
 - if a reply is expected, use the term "Over" to end each statement
 - use the term "Out" to end each transmission.
-

Written Safeworking communication

Qualified Workers compiling Network Forms, authorities and records must:

- record numbers in numerals, not words, for example using "12" instead of "twelve"
- use only authorised abbreviations, and
- unless completing an electronic form:
 - write clearly in ink
 - draw a single line through errors, and if required print the corrections above them
 - initial corrections in the margin beside the correction.

general

Network communication

If Network Forms include items that have a numbered box before them, Qualified Workers must:

- tick the numbered box if it applies, and complete the item, or
- place a cross in the numbered box if the item does not apply.

Qualified Workers must complete all other items on the form.

Unless otherwise specified, Network Forms and records must be kept for at least 90 days.

Network Procedures

NPR 721 Spoken and written communication

Effective date

29 September 2019

general

Communications equipment

Purpose

To prescribe the rules for using communications equipment in the Network.

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Communications equipment

Communications equipment listed in the following table, or compatible with equipment listed in the table, may be used to establish spoken effective communication in the Network.

Before rail traffic travels in the Network, equipment fitted to communicate with Network Control must be working correctly.

If Network Control communications equipment is defective, the Network Controller must:

- tell Maintenance Representatives about the faulty equipment
- establish alternative communication methods.

If a train's communications equipment becomes defective, Drivers must act in accordance with *NTR 410 Defective equipment*.

general

Communications equipment

The following table lists the protocols to be used for each type of communications equipment.

Communications equipment	Protocol	Emergency button
450.050 MHz	Open-channel	No
In-cab Communication Equipment (ICE)	Discrete-channel if communicating with Train Control, or through a pre-set or dialled-in number. Open-channel if communicating with other trains or ground staff that are using portable handset.	Yes
Digital Train Radio System (DTRS)	Discrete-channel	Yes
Government Radio Network (GRN)	Open-channel and discrete-channel	No
UHF radios	Open-channel	No
Yard radios	Open-channel	No
Control phones	Discrete-channel	Some
Mobile phones	Discrete-channel	No
Satellite phones	Discrete-channel	No
Standard phones	Discrete-channel	No
Trackside phones	Treat as discrete-channel	No

general

Communications equipment



NOTE

If a Network communications failure is declared, the Deputy Executive Director Network Operations must make sure that:

- appropriate controls are in place to ensure effective communications
 - all Train Crews, Network Controllers and Signallers are advised of the Network Communications failure
 - trains will enter the Network from Maintenance Centres, out-depots and sidings using an alternative means of communication.
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Network Procedures

NPR 721 Spoken and written communication

Effective date

30 September 2018

Network Communication

1. Purpose

This Standard mandates the requirements for communications in the Sydney Trains Network.

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2. Scope

This Standard applies to organisations whose workers undertake communications in the Sydney Trains Network.

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3. General

All communications in the Sydney Trains Network must:

- be in English
- be clear, brief and unambiguous
- be relevant to the task at hand
- not include slang, or jargon
- use standard terms, phrases and abbreviations where appropriate
- be directed to the relevant person who can act upon the communication
- represent the good practice communication behaviours identified in this standard

Network Communication

Responsibilities

Organisations are responsible for:

- identifying activities that involve communications which affect the safe and efficient operation of the railway
- developing and implementing procedures and instructions to enable Qualified Workers to comply with the protocols and requirements of this Standard
- ensuring that workers undertaking safety-critical communications are competent to do so
- monitoring communications to make sure that they meet the requirements of this Standard
- taking action to manage non-compliance with communication protocols.

4. Safety-critical communication

Safety-critical communication is any communication, spoken or written, that if not delivered, or incorrectly delivered, or not delivered promptly, there is reasonable likelihood of a safety incident occurring. Safety-critical communication includes, but not limited to, communication for:

- work in the rail corridor
 - rail traffic movements
 - conditions affecting the safe operation of the Network.
-

Network Communications

5. Spoken communications

Spoken communications include, but are not limited to communications:

- by landline telephone
- by mobile phone
- by two-way radio
- by signal-post telephone
- by in-cab train radios
- face to face

Spoken communication protocols

The content of spoken safety-critical communications must be confirmed by repeating the message back to the sender.

The receiver must not act on the communication until the sender confirms that the message has been repeated correctly.

Organisations must make sure that workers undertaking spoken communications in the Sydney Trains Network adhere to the requirements and protocols contained in the Sydney Trains Network Rules and Network Procedures:

- *NGE 204 Network communication*
- *NGE 230 Communications equipment*
- *NPR 721 Spoken and written communication*

Network Communication

Relaying communications

If it is not possible for a sender to communicate directly with an intended receiver, Qualified Workers may relay the content.

The content of the communication must be relayed exactly as received, and using the protocols in *NGE 204 Network communication* and *NPR 721 Spoken and written communication*.

Lead communicator

During spoken communications, one person shall take responsibility to lead the communication.

The lead communicator has responsibility to control the exchange of information to make sure all parties:

- clearly understand the information exchanged
- do not act on the information until confirmed that it is clearly understood
- comply with communication protocols and apply good practice communication behaviours
- communicate in a calm and respectful manner

The lead communicator on the Sydney Trains Network will be the:

- Electric Systems Operator (ESO), or
- the Network Controller (NC), when not communicating with the ESO, or
- the Signaller, when not communicating with the NC or ESO.

In all other instances, the lead communicator will be the person who initiates the communication.

Network Communications

Recording spoken communications

If spoken communications recording equipment is provided, it must be used to record communications.

The recordings must be kept for at least one year.

6. Written communications

Written communications are made using paper or electronic media. These include but are not limited to:

- Network Forms and authorities
- forms for the maintenance, commissioning or withdrawal of rollingstock or infrastructure
- written work instructions or directions
- transmitted text messages.

Sydney Trains and other organisations must have instructions or procedures in place to make sure that workers undertaking written communications in the Sydney Trains Network adhere to the requirements in the following Network Rules and Procedures:

- *NGE 204 Network communication*
- *NPR 721 Spoken and written communication*

Unless otherwise specified, records of written communications must be kept for at least 90 days.

Network Communication

7. Monitoring communications

General

Organisations whose workers undertake communications in the Sydney Trains Network must have a documented process in place to monitor and review communications.

The monitoring and review process must ensure that:

- the monitoring of communications is risk-based, with a focus on communications identified as safety-critical
- conducted at time intervals relevant to the risks associated with the Directorate's or Organisation's activities
- that the sample sizes of monitored communications are statistically representative
- a structured monitoring tool is used to monitor the communications utilising the *Communications behavioural standards* in this document
- if deficiencies in performance are found, improvement measures and action plans are put in place
- feedback processes are in place to highlight good communications
- results are made available to the appropriate areas within Sydney Trains upon request, for the purposes of performance assessment or incident investigation.

Network Communications

Risk-based monitoring

The process for monitoring communications must be focused on communications that have been identified as safety-critical.

It should target activities associated with those hazards rated as having the highest level of direct risk in the Sydney Trains Safety Risk Register, or the equivalent register for other organisations whose workers undertake communications on the Sydney Trains Network.

Examples of activities needing communications monitoring, based on their level of risk.

Network Communication

Hazard	Activities/Communications	Participants
Worker in path of train	<ul style="list-style-type: none"> • Planning and implementing: <ul style="list-style-type: none"> – work on track authorities – work on track methods 	<ul style="list-style-type: none"> • Protection Officer • Possession Protection Officer • Signaller • Network Controller
Derailment	<ul style="list-style-type: none"> • Shunting • Passing signals at STOP 	<ul style="list-style-type: none"> • Drivers • Guards • Shunters • Signallers
Collision between rail traffic	<ul style="list-style-type: none"> • Shunting • Passing signals at STOP • Special working: <ul style="list-style-type: none"> – Special Proceed Authority (SPA) – Pilot Staff Working (PSW) – Manual Block Working • Work trains and track vehicles: <ul style="list-style-type: none"> – in a Local Possession Authority (LPA), or – in a Track Occupancy Authority (TOA) 	<ul style="list-style-type: none"> • Drivers • Track Vehicle Operators • Signallers • Shunters • Protections Officers
Road/rail vehicle collision	<ul style="list-style-type: none"> • Condition Affecting the Network (CAN) warnings • Special working 	<ul style="list-style-type: none"> • Driver • Signaller • Network Controller • Handsignaller

Network Communications

Communications behavioural standards

Workers who undertake communications in the Sydney Trains Network must exercise good practice communication behaviours to meet the performance expectations of this standard.

The following table contains good and poor practice behaviours, arranged by key communication element.

They are intended to support the identification of desirable communication behaviours and provide a model by which communication behaviours can be consistently monitored.

Key communication element	Communication behaviours	
	Good practice	Poor practice
Opening a conversation	Identifies themselves, and their role, and location if required, and confirms who they are talking to	Does not identify themselves or confirm who they are talking to
	Identifies the purpose of the conversation early on	Does not clearly establish the purpose of the conversation
Structuring communications	Provides key information in a planned and logical order	Does not give information in the right order, or overloads receiver
	Repeats back critical information	Does not repeat back critical information
	Leads and refocuses the conversation if it goes off topic	Gets distracted and allows the conversation to go off topic
	Asks relevant questions to confirm a shared understanding has been reached	Assumes shared understanding without confirming or questioning
	Restarts a communication from the beginning if it is interrupted	Continues after an interruption, assuming the earlier part was correctly understood

Network Communication

Key communication element	Communication behaviours	
	Good practice	Poor practice
Speaking professionally	Controls tempo using short, simple sentences	Uses inappropriate tempo, speaking too fast or too slowly
	Uses clear descriptors and standard spoken terms including the phonetic alphabet	Speaks casually or uses slang when giving or receiving information
	Speaks confidently and calmly, and treats others with respect	Is offensive, aggressive, or obstructive
	Confirms accurate read back and repeats a message if there are errors	Does not correct inaccurate read back
Ending conversation	Makes sure that other parties have no further questions before ending the communication	Ends the conversation abruptly without clearly summarising and clarifying the communication

8. Network radio communication systems

Three radio systems are used in NSW for rail operations. These are:

- Digital Train Radio System (DTRS)
- National Train Communication System (NTCS)
- Local radio WB (without brake van)

Each of these systems provides a specific functionality to address the different communication needs across the Sydney Trains Network.

Network Communications

DTRS

The DTRS covers the Sydney Trains electrified rail network, which is bounded by Kiama, Macarthur, Leppington, Bowenfels, Richmond, Woodville Junction, Newcastle Interchange, Bondi Junction, Cronulla Carlingford and Port Kembla.

The types of DTRS equipment are summarised in the table below.

DTRS radio type	Used by	Can initiate rail emergency call (REC)	Can communicate with
In-cab	Drivers and Guards	Yes	<ul style="list-style-type: none"> • Radio terminal users for normal operations • All DTRS equipment for REC calls
Hand-portable	Trackside workers	Yes	<ul style="list-style-type: none"> • Radio terminal users for normal operations • Other hand portables for group calls • All DTRS equipment for REC calls
Radio terminal (DICORA)	Signallers Network Controllers Mechanical Controllers TCLO TCAC	Yes No No No No	Any DTRS type

Network Communication

DTRS in-cab radios

DTRS in-cab radios are used by Drivers and Guards for communications with:

- Signallers
- Network Controllers
- Mechanical Control
- other trains (REC call and group calls only)
- TCLO
- TCAC.

DTRS hand-portable radios

DTRS hand-portable radios are used by trackside workers for communications with:

- other trackside workers
- Signallers
- Network Controllers
- Mechanical Control
- TCLO
- TCAC.



WARNING

DTRS hand-portable radios must not be used to direct shunting movements.

DTRS Terminal (DICORA)

DTRS Terminals are used by Signallers, Network Controllers, Mechanical Control, TCLO and TCAC to communicate with trains and trackside workers.

Network Communications

NTCS

The NTCS is designed primarily for use by interstate locomotives and diesel passenger trains for communications with Network Controllers for the Australian Rail Track Corporation (ARTC) interstate network and the John Holland Group (JHG) country network. It is also the primary communication system for all trains between Kiama and Bomaderry.

Freight locomotives can use the NTCS when operating on the Sydney Metropolitan Freight Network (MFN) and will interface with the DTRS system for REC calls.

If fitted with an additional GSM-R module, the NTCS system:

- is interoperable with Sydney Train's DTRS, allowing Drivers of trains fitted with ICE radios to communicate with Signallers on the DTRS network
- provides additional coverage within the Sydney Trains Network where there are NTCS coverage gaps
- provides additional emergency call functionality.

Local (WB) radio

Local or WB radio provides open-channel communications on the 450.050 MHz frequency using a continuous tone-controlled squelch signalling (CTCSS) tone identifier.

The WB radio is used for communication between:

- trains if both are fitted with WB radio
- trains and Signallers where DTRS communication is unavailable
- trains and ground staff with hand-portable WB radios.

Network Communication

9. Communication equipment

Trains operating in the Sydney Train Network are fitted with the equipment listed in the table below.

User	Equipment	Network
Sydney Trains and NSW Trains electric fleets	DTRS in-cab radio	DTRS
NSW Trains diesel fleet	ICE radio with GSM-R module	DTRS and NTCS
	WB Radio	WB
Third party Operators	ICE radio with GSM-R module*	DTRS and NTCS
	WB radio	WB

* The requirement for third party operators to have ICE radio with GSMR module is specified in RSU 100

10. Effective date

26 February 2019

Spoken and written communication

Introduction

Effective written, radio and telephone communication is essential for safety in the Network.

Spoken numbers

Qualified Worker

1. Use the spoken numbers in the following table.
2. Stress the syllables in capital letters.
3. For a decimal point, say "point".

<i>For digit</i>	<i>Say</i>
0	ZEE-roh
1	WUN
2	TOO
3	thuh-REE
4	FO-wer

<i>For digit</i>	<i>Say</i>
5	FI-yiv
6	SIX
7	SEV-en
8	ATE
9	NINE-uh

Spoken and written communication

Phonetic alphabet (spoken letter names)

Qualified Worker

1. If it is necessary to spell words, use the spoken letter names in the following table.
2. Stress the syllables in capital letters.

<i>For</i>	<i>Letter name</i>	<i>Say</i>
A	ALPHA	AL-fah
B	BRAVO	BRAH-voh
C	CHARLIE	CHAR-lee
D	DELTA	DELL-tah
E	ECHO	ECK-oh
F	FOXTROT	FOKS-trot
G	GOLF	GOLF
H	HOTEL	hoh-TEL
I	INDIA	IN-dee-ah
J	JULIET	JEW-lee-ETT
K	KILO	KEY-loh
L	LIMA	LEE-mah
M	MIKE	MIKE

<i>For</i>	<i>Letter name</i>	<i>Say</i>
N	NOVEMBER	no-VEM-ber
O	OSCAR	OSS-cah
P	PAPA	pah-PAH
Q	QUEBEC	keh-BECK
R	ROMEO	ROW-me-oh
S	SIERRA	see-AIR-rah
T	TANGO	TANG-go
U	UNIFORM	YOU-nee-form
V	VICTOR	VIC-tah
W	WHISKY	WISS-key
X	X-RAY	ECKS-ray
Y	YANKEE	YANG-key
Z	ZULU	ZOO-loo

Spoken and written communication

Standard terms

Use only these standard terms to convey these meanings:

<i>Term</i>	<i>Meaning</i>
Emergency, emergency, emergency	This is an <i>emergency</i>
Correct	Yes. You are right
I read back	I am going to repeat all, or part, of your statement exactly as I received it
I say again	I am going to repeat all, or part, of my last statement
I spell	I am going to use the phonetic alphabet
Loud and clear	Your signal is strong, and every word is understood
Message received	I clearly received and understand your message
Negative	No. Not correct
Out	My transmission is complete
Over	I have finished speaking, and I am waiting for a reply
Read back	Repeat all, or a specified part, of my message back to me exactly as you received it
Receiving	I acknowledge your call. Proceed with the message
Roger	All your last statement is received and understood
Say again	Please repeat your last statement
Speak slower	Repeat what you said, speaking more slowly. It is hard to understand you
Stand by	Wait. I will be back soon

Spoken and written communication

Open-channel communications

Qualified Worker

1. Except in an emergency, make sure that no-one else is speaking before you begin to use an open-channel radio.

Sender

2. Start your message with the Safeworking designation, location, and/or train number or track vehicle number, as appropriate, of the person you are calling.

Say: "(Receiver) this is (Sender), over".

Identify yourself by Safeworking designation, location, and/or train or track vehicle number as appropriate.

Receiver

3. Start your reply with the Safeworking designation, location, and/or train or track vehicle number, as appropriate, of the person calling you.

Say: "(Sender) this is (Receiver), over".

Identify yourself by Safeworking designation, location, and/or train or track vehicle number as appropriate.

Sender

4. Make your statement, ending with "Over".

Receiver

5. Reply, ending with "Over".

Sender and Receiver

6. Use standard terms as required in the communication.

Sender or Receiver

7. At the end of the communication, say "Out".

Spoken and written communication

Emergency radio communications

Use whatever communication method is available.

If an emergency button is fitted:

Qualified Worker

1. Press the emergency button.
2. If there is no immediate answer, pause.
3. Repeat Step 1 until you are answered. If you are not answered, follow the steps for 'If an emergency button is not fitted'.
4. When the Receiver answers, give your location and the emergency message.
5. Exchange necessary information and directions.

If an emergency button is not fitted:

Qualified Worker

1. Say: "Emergency, emergency, emergency, this is (your identification)".
2. If the radio is open-channel, give brief details about the emergency.
3. If the radio is open-channel, users other than the Sender and Receiver must immediately cease transmission.
4. If there is no immediate answer, pause.
5. Repeat Step 1, and Step 2 if necessary, until you are answered.
6. When a Receiver answers, give your location and the emergency message.
7. Exchange necessary information and directions.

Spoken and written communication

Written communication abbreviations

Qualified Worker

1. Use the standard abbreviations listed below in written Safeworking communications:

<i>Abbreviation</i>	<i>Meaning</i>
BF	<i>blocking facility</i>
CP	<i>clearance post</i>
CAN	<i>Condition Affecting the Network</i>
ASB	<i>Absolute Signal Blocking</i>
X/over	<i>crossover</i>
ESR	Eastern Suburbs Railway
Frame	<i>groundframe</i>
hr	hours (time of day by 24hr clock)
IBA	Infrastructure Booking Authority
Illa	Illawarra
Inst	instrument
Jct	junction
km	kilometre
km/h	kilometres per hour
kP	kilometre post
L/Xing	<i>level crossing</i>
LE	<i>light locomotive</i>
LPA	<i>Local Possession Authority</i>

Spoken and written communication

<i>Abbreviation</i>	<i>Meaning</i>
Loco	<i>locomotive</i>
metro	metropolitan
min	minutes
NIN	<i>Network Incident Notice</i>
NSR	New Southern Railway
Nth	North
No.	number
PSN	<i>Pilot Staff Notice</i>
PSW	<i>pilot staff working</i>
pts	<i>points</i>
Sig	signal
SPA	<i>Special Proceed Authority</i>
Sth	South
STN	<i>Special Train Notice</i>
Subn	Suburban
TOA	<i>Track Occupancy Authority</i>
TOC	<i>Train Operating Conditions manual</i>
TWA	<i>Track Work Authority</i>
WOLO	hot weather speed restriction
YLS	<i>yard limit sign</i>

network
procedures

Spoken and written communication

Network Procedures

Nil

Effective date

29 April 2017